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# Review of Genera of the Tribe Sparasionini (Hymenoptera: Platygastroidea, Scelionidae), and Description of Two New Genera from the New World

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## ABSTRACT

Five genera in the tribe Sparasionini are described and keyed. *Electroteleia* Brues (Baltic amber), *Sceliomorpha* Ashmead (Neotropics) and *Sparasion* Latreille (Nearctic, Palearctic, Oriental, and Afrotropical regions) are redescribed. *Listron* Musetti and Johnson, new genus is described from Chile with two species, *L. politum* Musetti and Johnson, new species (type species of the genus), and *L. bilaminatum* Masner, new species. *Mexon* Masner and Johnson, new genus, is described from Mexico, with two new species, *M. adelphos* Masner and Johnson, new species (type species of the genus), and *M. consors* Masner and Johnson, new species. The synonymy of *Aliofreniger* Szabó with *Sceliomorpha* and of *Prosparasion* Kieffer with *Sparasion* are confirmed. Transfer of the type species of *Prosparasion*, *P. coeruleum* Kieffer, 1913 into the genus *Sparasion* makes it a secondary junior homonym of *Sparasion coeruleus* Kieffer, 1905. The replacement name *Sparasion lividus* Johnson, Masner, and Musetti is proposed for the junior name to resolve this homonymy. The gender of the name *Sparasion* is discussed, and we propose that it should be treated as a masculine noun. The authorship of the family-group name Sparasionini is credited to Dahlbom (1858).

## INTRODUCTION

The tribe Sparasionini (Hymenoptera: Platygastroidea, Scelionidae) is a fairly speciose group with 150 described species (Johnson, 1992). They are generally found worldwide, with the notable exceptions of Australia, New Guinea, and the Caribbean.

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Three genera are currently recognized (Masner, 1976; Austin and Field, 1997): *Sparasion* Latreille (141 valid species described), *Sceliomorpha* Ashmead (8 valid species described), and the fossil genus *Electroteleia* Brues (1 species). These are usually relatively large parasitoid wasps, and the meager host records, all for *Sparasion* and none of these identified to species, indicate that they are parasitoids of the eggs of Tettigoniidae (Orthoptera) (Muesebeck, 1979; Grissell, 1997). Masner (1976) also included in the tribe the genus *Archaeoteleia* Masner, an endemic group from New Zealand and the Valdivian forests of Chile and Argentina. However, Austin and Field (1997) proposed that this genus is more closely related to a different, large clade within the Scelionidae, all possessing the apomorphic *Scelio*-type ovipositor (Field and Austin, 1994).

As part of our review of the scelionid genera of the world, we describe and illustrate these genera; propose two new genera from the New World, one from Mexico, the second from Chile; and discuss their relationships.

## MATERIALS AND METHODS

This work is based upon specimens in the following collections:

| | |
|---|---|
| AMNH | J. M. Carpenter: American Museum of Natural History, New York, NY, USA |
| BMNH | D. Notton: The Natural History Museum, London, United Kingdom |
| CASC | W. Pulawski: California Academy of Sciences, San Francisco, CA, USA |
| CNCI | A. Bennett: Canadian National Collection of Insects, Ottawa, Canada |
| FSCA | J. Wiley: Florida State Collection of Arthropods, Gainesville, FL, USA |
| GMUG | M. Reich: Universität Göttingen, Göttingen, Germany |
| HNHM | S. Csősz: Hungarian National Museum of Natural History, Budapest, Hungary |
| INBIO | M. Z. Arrieta: Instituto Nacional de Biodiversidad, Santo Domingo, Costa Rica |
| MEMU | R. L. Brown: Mississippi State University, Mississippi State, MS, USA |
| MEUC | R. H. González: Universidad de Chile, Santiago, Chile |
| MIZA | J. L. García: Universidad Central de Venezuela, Maracay, Venezuela |
| NMNH | M. Buffington: National Museum of Natural History, Washington, DC, USA |
| OSUC | N. F. Johnson: The Ohio State University, Columbus, OH, USA |
| TAMU | J. Oswald: Texas A&M University, College Station, TX, USA |
| UASK | S. Kononova: Institute of Zoology, Kiev, Ukraine |
| UCDC | S. Heydon: University of California, Davis, CA, USA |
| UCRC | S. Triapitsyn: University of California, Riverside, CA, USA |
| ZMAS | S. Belokobylskij: Zoological Institute, St. Petersburg, Russia |

Abbreviations and terms used in text: A1, A2, ... A12: antennomeres 1, 2, ... 12; claval formula: distribution of the large, multiporous basiconic sensilla on the underside of apical antennomeres of the female, with the segment interval specified followed by the number of sensilla per segment (Bin, 1981); LOL: lateral ocellar line, the shortest distance between the inner margins of median and lateral ocelli (Masner and Huggert, 1989); OOL: ocular ocellar line, the shortest distance between the inner orbit and the outer margin of the posterior ocellus (Masner and Huggert, 1989); S1, S2, ... S6: metasomatic sterna 1, 2, ... 6; T1, T2, ... T7: metasomatic terga 1, 2, ... 7. Morphological terminology follows Masner (1980) and Mikó et al. (2007). Figures were made using AutoMontage software and GT-Vision hardware.

## Sparasionini Dahlbom

Sparasionidae Dahlbom, 1858: 290; Masner, 1976: 12 (as Sparasionini).

In his revisionary notes on scelionid genera, Masner (1976) treated the Sparasionini as a new tribe, the first occasion on which the family-group name was used precisely at that rank. However, Dahlbom (1858) is the correct author of the name. He used it to denote a group consisting of the genera *Sparasion*, *Teleas* Latreille, and *Platygaster* Latreille, a taxonomic concept compatible only with our current circumscription of the superfamily Platygastroidea. Masner (1976) included within the Sparasionini the genera *Sparasion*, *Sceliomorpha*, *Electroteleia*, *Archaeoteleia*, and, in addition, "a new undescribed genus

from Chile related to *Archaeoteleia*...". This last taxon referred to aberrant, micropterous species that we now consider to belong to *Archaeoteleia*. References to host records from Gryllacrididae (Stenopelmatinae) also refer to *Archaeoteleia*, and this group of crickets is not known to be a host of any sparasionine as this group is understood here.

RELATIONSHIPS: The scope and relationships of the tribe Sparasionini are some of the intriguing questions of platygastroid systematics. Austin and Field (1997) seemed to have definitively excluded *Archaeoteleia* from the tribe in that its telescoping, *Scelio*-type ovipositor more closely allies it with dozens of genera in a putatively monophyletic group referred to as Scelionini sensu lato. In the same paper, a preliminary phylogenetic analysis based on ovipositor characters suggested that Sparasionini sensu stricto (i.e., including only *Sceliomorpha* and *Sparasion*) may be the sister group of Platygastridae, with these two taxa together comprising the sister group to all other scelionids. Their evidence in support of the proposition that Sparasionini s.str. is monophyletic is based on the following suggested synapomorphies: abdominal tergum 9 is small (their character 1, state 1) and partly sclerotized (character 2, state 1). However, the data matrix has character 1 coded as the plesiomorphic state 0 (tergum 9 large), and state 1 for character 2 is found also in *Archaeoteleia*, four other tribes of Scelionidae, and both subfamilies of Platygastridae. It seems that the evidence for the monophyly of the tribe is less than definitive.

Murphy et al. (2007) recently examined the relationships among genera within Platygastroidea on the basis of three genes (18S, 28S, COI). They reported that *Archaeoteleia* groups together with *Neuroscelio* Dodd and, in some analyses, with *Sparasion*, together forming the sister group of all other Platygastroidea. These results suggested, again, that the Scelionidae is paraphyletic, but also that the tubular *Scelio*-type ovipositor observed in *Archaeoteleia* was independently derived from the remainder of the Scelionini s.lat. The position of *Sceliomorpha* varied between the Bayesian and maximum parsimony analyses, in the former grouping with *Sparasion* outside of the main clade of scelionids (0.81 posterior probability); in the latter as sister to the main scelionid clade, separated from the branch subtending *Sparasion* by the Platygastridae. The support for the basal branches in the MP analyses was deemed to be relatively weak (<50% bootstrap support), effectively producing an unresolved polytomy among (*Archaeoteleia* + *Sparasion* + *Neuroscelio*), Platygastridae, *Sceliomorpha*, and the main scelionid clade. Thus, the additional data brought to bear on this question by Murphy et al. (2007) seem to have done little to better resolve the relationships between and within Sparasionini. In fact, *Archaeoteleia* now seems to be back in the picture, together with *Neuroscelio*. The placement of *Neuroscelio* basally within the phylogeny corroborates data from Austin and Field (1997), observations that were preemptively dismissed on the supposition that *Neuroscelio* belonged to the tribe Gryonini. None of the characters upon which any of these analyses were based are observable in the fossil genus *Electroteleia*. Hence, the position of *Electroteleia* remains uncertain.

The results presented here contribute little to the question of relationships of Sparasionini s.str. with other platygastroids. We are presently working to expand the molecular data set of Murphy et al. (2007) and supplement it with morphological characters, precisely to address the question of higher-level relationships of Platygastroidea. Within the tribe, it seems clear to us that the new genus *Listron* is most closely related to *Sceliomorpha*: it shares the U-shaped radicle, otherwise unique within Platygastroidea, and the absence of a postmarginal vein in the forewing. The relative position of *Mexon* is unclear. Discovery of the female is important to better understand its placement.

DIAGNOSIS: Members of this tribe may be recognized by the combination of the 1-2-2 tibial spur formula, the presence of a bulla in R of the forewing, the reduced R in the hind wing, and the plesiomorphic *Ceratobaeus*-type ovipositor (as described in Field and Austin, 1994, and Austin and Field, 1997).

## KEY TO GENERA OF SPARASIONINI

1. Radicle not differentiated from remainder of scape; base of scape U-shaped, inserting on

the underside of the interantennal prominence (figs. 8, 12, 26: *U*); . . . . . 2

– Radicle clearly differentiated by a transverse line and distinctly narrower diameter, inserted into base of scape at a distinct angle to the longitudinal axis of the scape (figs. 37: *r*; 5, 14); antenna arising frontolaterally from interantennal prominence . . . . . 3

2. Eyes with long, clearly visible hairs (figs. 26, 28, 31, 32); frons broadly convex, without transverse ledge (figs. 28, 31, 34); broadly distributed in Neotropics from the southwestern United States to northern Argentina, unknown from Chile . . . . . *Sceliomorpha* Ashmead

– Eyes with only very short, sparse hairs (figs. 8, 12); frons with one or two prominent transverse ledges (figs. 7, 11); known only from central Chile. . . . . *Listron* Musetti and Johnson, n. gen.

3. Malar sulcus present (fig. 5: *ms*); Baltic amber . . . . . *Electroteleia* Brues

– Malar sulcus absent . . . . . 4

4. Ocelli clustered in center of vertex (figs. 14, 18), LOL < OOL; frons broadly convex, without transverse ledge; Mexico . . . . . *Mexon* Masner and Johnson, n. gen.

– Lateral ocelli separated from inner orbit by only 0.5–1.5 times their own diameter (figs. 38, 40), LOL > OOL; frons usually with 1–3 well-developed transverse ledges (fig. 36); widespread in Holarctic, Africa, Madagascar, tropical Asia east to Japan in the north and the Moluccas (Ceram) in the south. . . . . *Sparasion* Latreille

## *Electroteleia* Brues

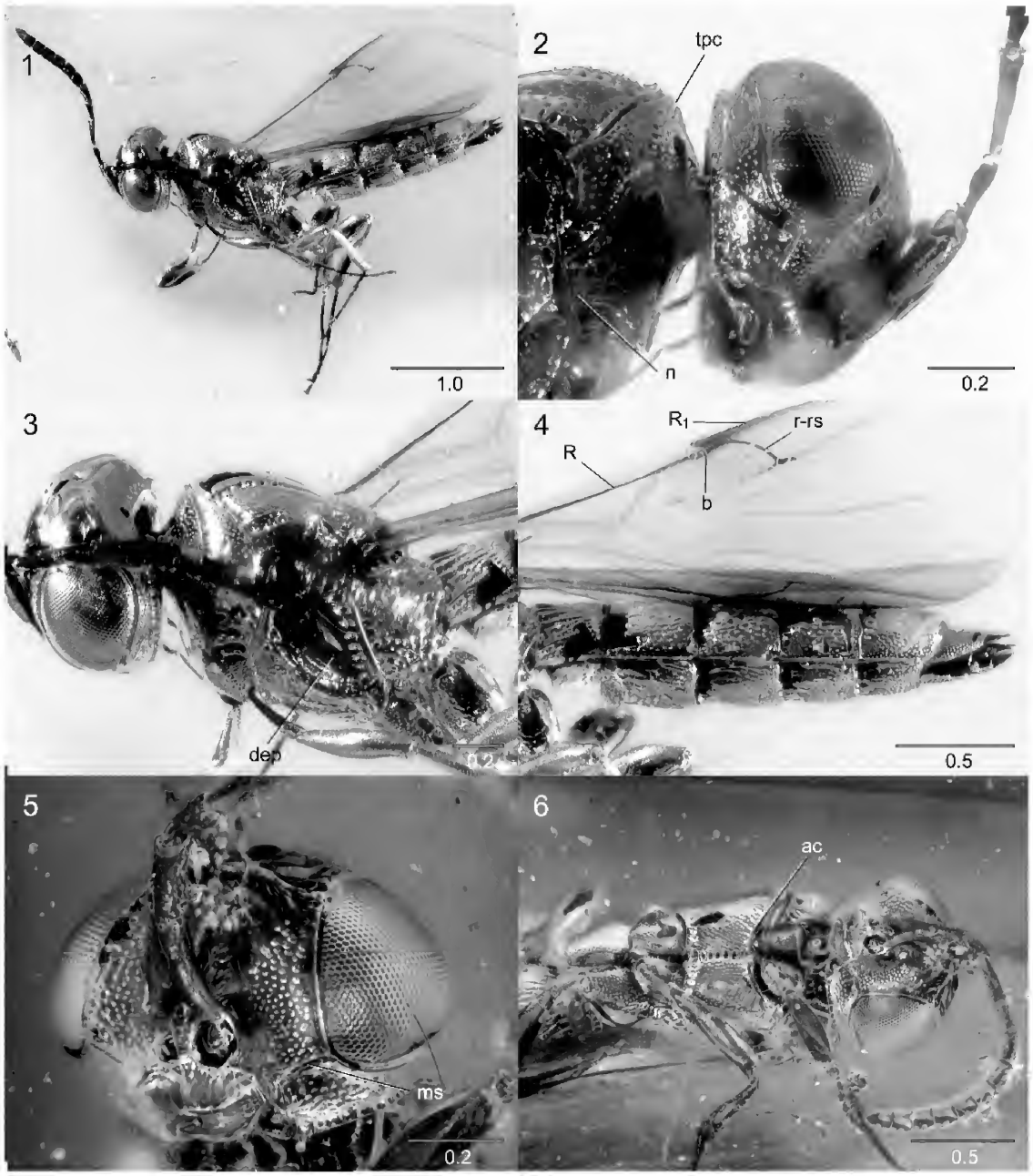
Figures 1–6

*Electroteleia* Brues, 1940: 80. Type: *Electroteleia stigmatica* Brues, by monotypy and original designation.

DESCRIPTION: Length 3.5 mm; body moderately robust, with relatively long, strong legs, antenna elongate; macropterous.

Head (figs. 2, 3, 5) transverse in dorsal view; upper frons convex, without transverse shelf (fig. 2); hyperoccipital carina absent; occipital carina well developed, continuous medially, crenulate; lateral ocellus distinctly separated from inner orbit of compound eye, OOL 0.5 times diameter of lateral ocellus; compound eye glabrous (figs. 2, 5); frons broadly convex, without distinct scrobe, covered with widely separated, small punctures; interantennal process rounded, weakly produced, torulus opening laterally from process (fig. 5); submedian carina absent; orbital carina absent; lower frons without fanlike striae; interocular space slightly less than eye height; inner orbits parallel; clypeus semicircular, flat, apically rounded, not divided into anteclypeus and postclypeus; malar sulcus present (fig. 5: *ms*); gena narrow, weakly convex; labrum not visible; mandible moderate in size, narrowing toward apex, two apical teeth, teeth acute, arrayed transversely across tip of mandible; maxillary palpus at least 4-segmented, segments cylindrical; labial palpus not clearly visible; antenna 12-merous in both sexes; radicle inserted subapically into A1, at distinct angle to longitudinal axis of A1 (fig. 5: *r*); A1 gradually, moderately widened in apical half; A3 longer than A2; female antenna with apical 7–8 antennomeres forming narrow clava (figs. 1, 6); gustatory sensilla on female antenna (Isidoro et al., 1996) arranged in longitudinal pairs on apical antennomeres; claval formula A5–A12 1-2-2-2-2-2-2-1; male antenna with tyloids on A4–A8.

Mesosoma (figs. 1, 3, 6) robust, in dorsal view slightly longer than wide, in lateral view deep, convex dorsally; pronotum in dorsal view narrow laterally, anterolateral corners rounded; transverse pronotal carina present (fig. 2: *tpc*); vertical epomial carina present; horizontal epomial carina present; anterior face of pronotum short, abruptly declivous, barely visible in dorsal view; lateral face of pronotum broadly concave below horizontal epomial carina, facing anterolaterally, with broad scrobe for reception of foreleg; netrion present, broadly fusiform, open ventrally (fig. 2: *n*); anterior margin of mesoscutum meeting pronotum dorsally; mesoscutum semioval in outline; admedian lines absent; parapsidal lines absent; notauli present, percurrent; skaphion absent; transscutal articulation well developed, coarsely crenulate; scutellum distinctly wider than long, unarmed laterally, convex; axilla broad, costate; metanotum well developed, dorsellum clearly differentiated, narrow, unarmed; dorsal surface of propodeum medially excavated, no setae visible; keels, submedial and lateral plicae of propodeum present; mesopleuron large, prominent; mesopleural depression well developed, reaching pronotum anteriorly




Figs. 1–6. *Electroteleia stigmatica* Brues. **1**, Lateral habitus, holotype female (MCZC 8149). **2**, Head and anterior mesosoma, ventrolateral view, holotype female. **3**, Head and mesosoma, lateral view, holotype female. **4**, Forewing and metasoma, lateral view, holotype female. **5**, Head, anteroventral view (OSUC 167190). **6**, Head and mesosoma, ventral view (OSUC 167190). **ac**, acetabular carina; **b**, bulla; **dep**, mesopleural depression; **ms**, malar sulcus; **n**, netrion; **R**, radius (submarginal vein); $\mathbf{R_1}$, first abscissca of radius (postmarginal vein); **r-rs**, radial-radial sector crossvein (stigmal vein); **tpc**, transverse pronotal carina. Scale bars in millimeters.

(fig. 3: *dep*); mesopleural carina indicated for short distance anteriorly; sternaulus absent; mesopleural pit present; anterior margin of ventral portion of mesepisternum and acetabular carina not extended forward (fig. 6: *ac*); mesopleuron flanked posteriorly by vertical line of well-developed foveae; episternal foveae absent; dorsal corner of mesepimeron rounded, without tooth; anteroventral portion of metapleuron separated from lateral face by irregular carina and sculpture, setose; metapleural pit absent; posterior margin of metapleuron lamellate; metapleuron separated from propodeum dorsally by deep groove; propodeum with longitudinal carinae well developed, setose dorsally, posterolateral corners lamellate; legs slender (fig. 1), hind femur weakly incrassate; posterior surface of hind coxa smooth; trochantellus present on all legs; outer surface of fore-, midtibia without spines; tibial spur formula 1-2-2, inner spur longer than outer; tarsal formula 5-5-5; tarsomeres tapering in width apically; pretarsal claws simple; apex of forewing extending to or beyond apex of metasoma, hyaline, marginal cilia very short; R fairly straight, extending through basal 0.6 of length of forewing (fig. 4), interrupted by distinct bulla basad of origin of r-rs, without distinct bristles; $R_1$ reaching costal margin, extending apically as postmarginal vein beyond apex of r-rs, vein expanded posteriorly and costal cell posterior to $R_1$ deeply pigmented, forming distinct stigma or thick marginal vein; r-rs (stigmal vein) reflexed apically, arising far beyond bulla in R from marginal vein; short spur of Rs continuing apically beyond stigmal knob; no other tracheate veins in forewing; hind wing with R tracheate only in basal 0.4, not extending to hamuli and costal margin; no strong dark bristles on R; costal margin of hind wing above R with rather dense, strong setae; three hamuli present.

Metasoma (fig. 4) more or less cylindrical, terga slightly flattened, sterna deep, convex; T1–T5 subequal in length, T2 slightly the longest; female with six terga, six sterna visible externally, male with seven terga visible externally; submarginal ridge well developed, defined by narrow laterotergites to form deep submarginal rim; no spiracles visible; base of segment 1 longitudinally costate; suture between segments 1 and 2 basally crenulate; base of segments 2–5 costate, sutures between segments beyond 5 simple; T1 with weakly developed horn; female T6 without median raised field of microsetae or secretion; S1 laterally compressed, clasped between apices of hind coxae, not extending anteriorly between bases of hind coxae; anterior margin of S2 produced anteriorly (fig. 4); no felt fields present on sterna; internal ovipositor characters not visible.

DIAGNOSIS: Distinguished from all other Sparasionini by the well-developed malar sulcus and the spur of Rs extending apically from the apical knob of the stigmal vein (r-rs).

GEOGRAPHIC DISTRIBUTION: Baltic amber.

COMMENTS: The wings of all specimens appear to have small breaks and cracks in the venation, many of which are probably artifacts of preservation. These do not appear to us to be qualitatively different from the structure that we are interpreting as the bulla in R. However, this break is present in all specimens, suggesting that this is the same as the bulla observed in all other genera of Sparasionini.

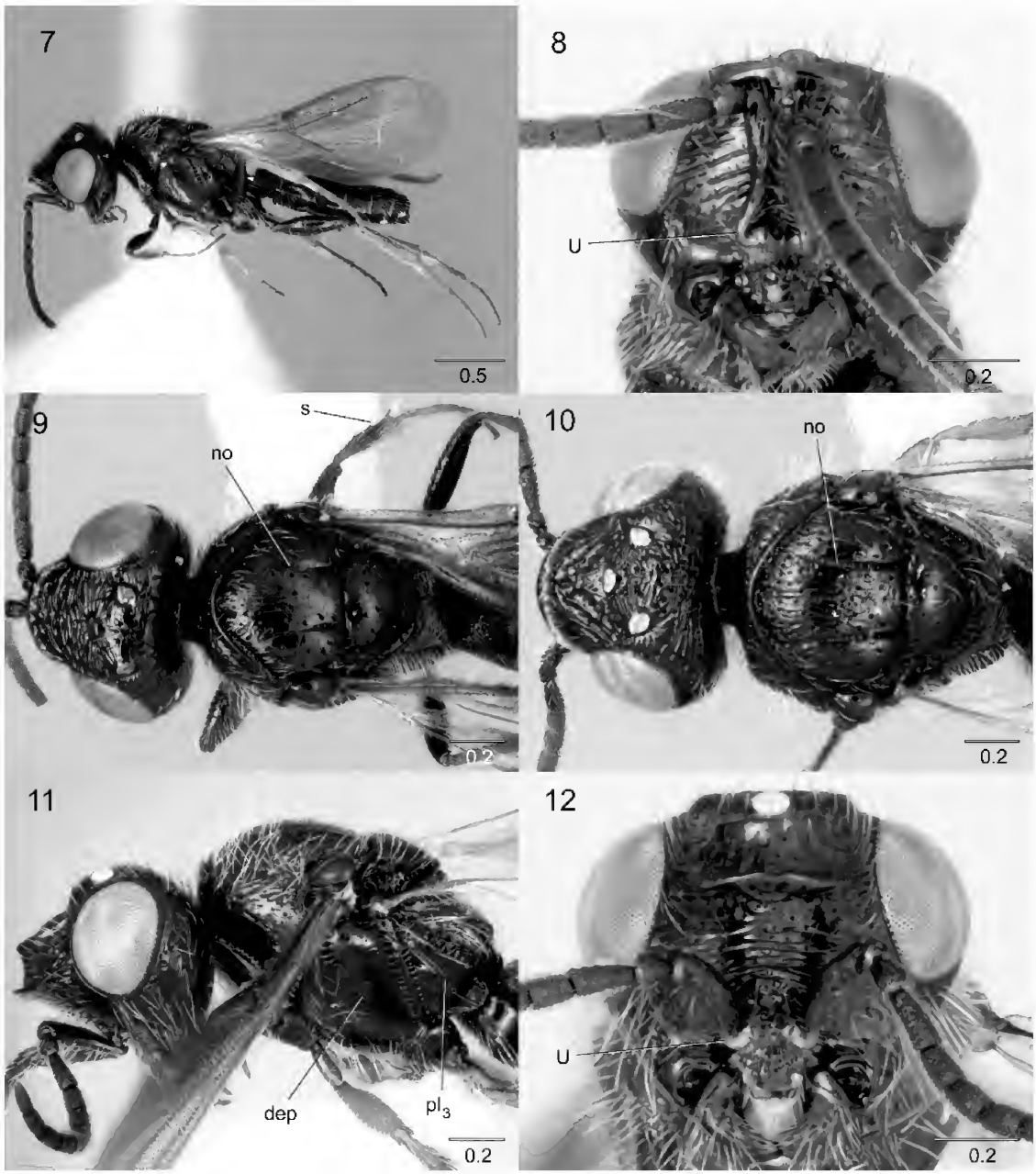
MATERIAL EXAMINED: Holotype female, "MUS. COMP. ZOOL. /No. 8149 ♀ Electroteleia stigmatica Brues Holotype BALTIC AMBER" (MCZC). Paratypes: two males, one female, 8150, 5494, 5493 (MCZC). Other material: 1 male, BST03102 (GMUG); 1 female (ZMUC); 7 females, 4 males, OSUC 167294, 167191, 167190, 67897, 67859, 167188, 67854, 67900, 67840, 167295, 67907 (OSUC).

## *Listron* Musetti and Johnson, new genus

Figures 7–12

DESCRIPTION: Medium sized, robust, length 2.3–3.2 mm; with abundant, scattered, erect, long hairs on head and body; legs moderately long; head and body black; macropterous.

Head moderately transverse; middle of frons with one (figs. 7, 8) or two (figs. 11, 12) sharp transverse ledges, completely extending between inner orbits; lower frons between ledge and interantennal prominence transversely striate (figs. 8, 12); eye appearing glabrous but with few scattered minute hairs (visible at high magnification); hyperoccipital




Figs. 7–12. *Listron* Musetti and Johnson, n. gen. **7**, *L. politum* Musetti and Johnson, n. sp., lateral habitus, holotype male (OSUC 162182). **8**, *L. politum*, n. sp., head, frontal view, holotype male. **9**, *L. politum*, n. sp., head and mesosoma, dorsal view, holotype male. **10**, *L. bilaminatum* Masner, n. sp., head and mesosoma, dorsal view, holotype male (OSUC 174168). **11**, *L. bilaminatum*, n. sp., head and mesosoma, lateral view, holotype male. **12**, *L. bilaminatum*, n. sp., head, frontal view, holotype male. **dep**, mesopleural depression; **no**, notaulus; **$pl_3$**, metapleuron; **s**, foretibial spur; **U**, fused antennal radicle. Scale bars in millimeters.

carina absent; occipital carina well developed, continuous medially, nearly reaching mandible ventrally, crenulate; ocelli rather large, OOL distinctly shorter than LOL (figs. 9, 10), separated from inner orbit by approximately 1 ocellar diameter; inner orbital space subequal to eye height; inner orbits diverging ventrally; frons largely flat, without frontal scrobe; interantennal process moderately developed, overhanging forward, torulus opening ventrally from process; submedian carina absent; orbital carina absent; lower frons without fanlike striae; clypeus relatively small, truncate apically (figs. 8, 12), lateral corners not projecting; not differentiated into anteclypeus, postclypeus; malar sulcus absent; gena smooth, without fanlike striae, moderately expanded; labrum hidden beneath clypeus; mandible clasped, strong, fairly long, gradually tapering in width apically, deeply bidentate, teeth subequal in length, transversely oriented across tip of mandible; maxillary palpus 5-segmented, all segments elongate, cylindrical, not dilated; labial palpus 3-segmented; male antenna rather short, 12-merous; radicle smoothly joined to base of A1, apex parallel to longitudinal axis of A1, U-shaped (figs. 8, 12: *U*), inserting dorsally into torulus; apex of A1 with moderately broad, transparent lamellae flanking either side of base of A2; A3 longer than A2; female antenna filiform, not noticeably expanded apically; claval formula A12–A5:1-2-2-2-2-2-2-1; male antenna tyloids on A4–A6 or A4–A8, low, short; male flagellomeres elongate, cylindrical, covered with short, appressed microtrichiae.

Mesosoma (figs. 9–11) robust, rather short, fairly convex dorsally, with abundant long scattered upright pilosity; pronotum in dorsal view rhomboidal in outline, shoulders well developed, subtriangular, anterolateral corners weakly developed; transverse pronotal carina present, delicate; vertical epomial carina present; horizontal epomial carina present; anterior face of pronotum extremely narrow, hidden in dorsal view; lateral face of pronotum moderately concave, predominantly smooth, shining; netrion represented by series of foveolae above forecoxa; anterior margin of pronotum finely crenulate; anterior margin of mesoscutum meeting pronotum dorsally; mesoscutum moderately transverse; admedian lines absent; parapsidal line weakly indicated; notaulus present (figs. 9, 10: *no*), fine, percurrent, narrow throughout its length, finely foveolate; skaphion absent; transscutal articulation foveolate; scutellum semicircular, without raised axillulae; axilla well developed; metanotum with dorsellum weakly differentiated, unarmed, foveolate; dorsal surface of propodeum with abundant pilosity, with five subparallel longitudinal keels, not medially excavated, posterolateral corners blunt; mesopleuron large, prominent; mesopleural depression rather shallow (fig. 11: *dep*); mesopleural carina completely absent; sternaulus absent; mesopleural pit not strongly developed; anterior margin of ventral portion of mesepisternum straight, not protruding between forecoxae; episternal foveae absent; dorsal corner of mesepimeron rounded, without posterior tooth; metapleuron (fig. 11: $pl_3$) considerably convex, almost entirely smooth, nearly glabrous, with few scattered long hairs, not differentiated by keels or carinae (in contrast to sides of propodeum), with complete row of foveolae along anterior margin; anteroventral portion of metapleuron rounded, not separated from lateral face by carina, setose; metapleural pit absent; posterior margin of metapleuron not lamellate; metapleuron separated from propodeum dorsally by change in sculpture; propodeum rugulose laterally, setose throughout, posterolateral corners weakly projecting posteriorly; legs moderately slender; posterior surface of hind coxa smooth; femora not incrassate; trochantellus present on all legs; outer surface of fore tibia with row of strong, large, semierect spines (fig. 9: *s*); tibial spur formula 1-2-2, inner spurs slightly longer than outer spurs on mid-, hind legs; tarsal formula 5-5-5; tarsomeres cylindrical; pretarsal claws simple; apex of forewing extending slightly beyond tip of metasoma, moderately infuscate, marginal cilia very short; R fairly straight as far as bulla, extending well beyond basal 0.3 of length of forewing, with several stiff, erect, black bristles arising throughout its length, costal portion (marginal vein) very short, punctiform, heavily pigmented; bulla present, very narrow; R beyond bulla extending toward, but not reaching costal margin,

strongly widened to form small pseudostigma; $R_1$ absent or extremely short, therefore without postmarginal vein; r-rs (stigmal vein) very short, strongly downcurved; no other tracheate veins in forewing; hind wing with tubular R reaching half distance to hamuli and costal margin; no strong dark bristles on R; 4 hamuli present.

Metasoma (fig. 7) rather short, considerably depressed, appearing subsessile; female with seven terga, six sterna visible externally; male with eight terga, seven sterna visible externally; basal five tergites subequal in length, broadly transverse; male T7 very narrow, T8 narrow, subcircular; sculpture beyond basal costae with delicate, longitudinal striae; T1 slightly the longest tergite; laterotergites strongly flexed ventrally, remarkably wide, submarginal ridge well developed; no spiracles visible; anterior margin of segment 1 deeply crenulate, margined by anterior carina; anterior margin of T2, S2 simple or finely crenulate; anterior margins of remaining segments simple; S1 weakly compressed laterally, not extending anteriorly between hind coxae; anterior margin of S2 straight, with moderate elevation between acrosternite and sternite; sublateral felt fields absent.

DIAGNOSIS: Most similar to *Sceliomorpha* with which it shares the U-shaped, fused radicle and the form of the forewing venation. *Listron* may be distinguished from *Sceliomorpha* by the arcuate frontal ledges; the convex, smooth, nearly glabrous metapleuron; the presence of foretibial spines; and the extremely short hairs on the compound eyes.

TYPE SPECIES: *Listron politum* Musetti and Johnson, n. sp.

ETYMOLOGY: An ungrammatical combination of *listros*, Greek for "shovel", referring to the frontal ledge; and part of the word *Sparasion*, a related genus. The name is neuter in gender.

GEOGRAPHIC DISTRIBUTION: Chile.

COMMENTS: The two species of *Listron* that are described below are only known from males. The presence of a frontal ledge and the spines on the femora suggest that the adults are fossorial. The peculiar U-shaped base of the scape appears to be a fairly strong synapomorphy linking *Listron* with *Sceliomorpha*.

### *Listron politum* Musetti and Johnson, new species

Figures 7–9

DESCRIPTION: Holotype male: Femora dark brown to black; frons with single transverse ledge (fig. 7); occiput without striae (fig. 9), with only shallowly incised reticulate microsculpture; penultimate maxillary palpomere cylindrical; middle lobe of mesoscutum with widely spaced setigerous punctures, shallowly incised reticulate microsculpture (fig. 9); upper portion of mesopleuron longitudinally rugulose; T1–T4 finely longitudinally rugulose.

Female: Coxae, femora, base of foretibia dark brown; trochanters, tibiae, tarsi brownish yellow; occiput with irregular, weakly developed transverse rugulae; outer surface of fore-, midtibiae with strong spines.

VARIATION: The single paratype male differs most strikingly from the holotype in the yellow femora. More subtly, the lateral portions of the occiput are weakly transversely striate, and the microsculpture of T3 and T4 is coriaceous, lacking any obvious longitudinal elements. In view of the very limited amount of material presently available, we prefer to err on the side of a more inclusive and robust circumscription for this species.

MATERIAL EXAMINED: Holotype male: **CHILE**: Recinto, Rancho Grande, 36.793°S 71.734°W, 1-10.I. 2000, MT, DW Webb, DK Yeates; OSUC 162182 (MEUC). Paratypes: **CHILE**: Quillota Prov., PN Campanas, Palmas de Ocoa, 2-10.I. 2000, MT, DW Webb, one male, OSUC 162183 (INHS); Santiago, Cordillera, Reserva Río Clarillos, 1-20.II.1989, R. Miller, L. Stange, Malaise trap, one female, OSUC 186072 (FSCA).

### *Listron bilaminatum* Masner, new species

Figures 10–12

DESCRIPTION: Holotype male: Femora yellow; frons with two well-developed transverse ledges (figs. 11, 12); occiput transversely striate (fig. 10); penultimate maxillary palpomere expanded apically; middle lobe of mesoscutum with distinct umbilicate setigerous punctures on rugulose background (fig. 10); upper portion of mesopleuron microreticulate; T1–T4 longitudinally rugulose.

MATERIAL EXAMINED: Holotype male: **CHILE**, Region IV, Elqui Prov., Quebrada El Arrayán, 10 km S La Villa; malaise in dry wash; 400 m; 16.XII. 2003/3.I. 2004; ME Irwin, FD Parker, 30°04.26′S 71°00.04′W; OSUC 174168 (MEUC).

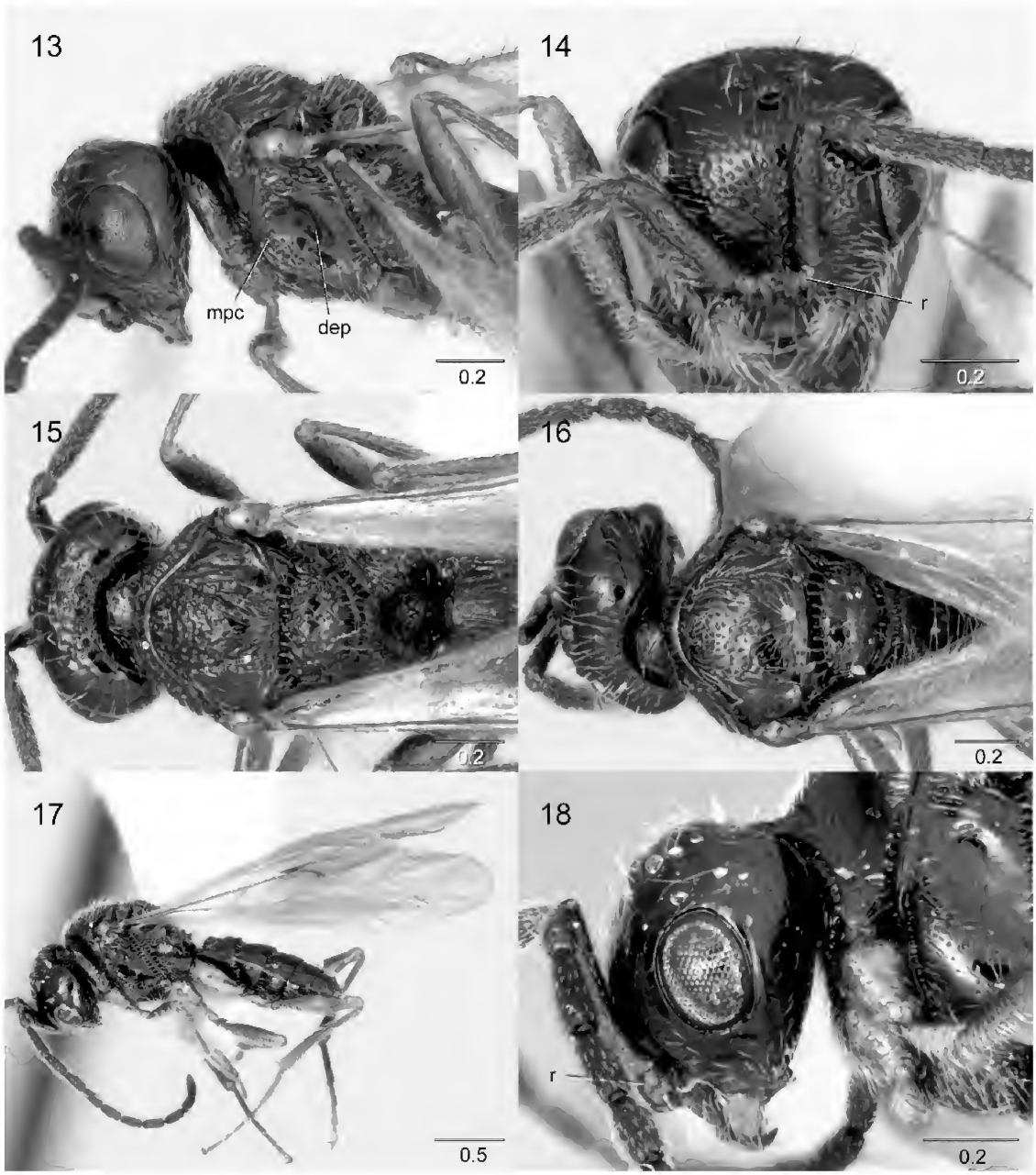
*Mexon* Masner and Johnson, new genus

Figures 13–18

DESCRIPTION: Medium sized, length 2.1–2.4 mm; body moderately elongate, with relatively elongate appendages; head and body dark brown or black; legs and antennae much lighter in color, yellow to yellowish brown; males macropterous, females unknown.

Head distinctly transverse (figs. 15, 16), foramen magnum very high (figs. 13, 18); hyperoccipital carina absent; occipital carina well developed, sharply raised, continuous medially, descending to mandibular condyle, finely crenulate; ocelli clustered into small triangle (fig. 15), OOL several times longer than LOL, LOL $\leq$ 1 ocellar diameter; OOL longer than POL; compound eye (figs. 13, 18) oval, glabrous, inner orbits subparallel, only slightly diverging ventrally; frons moderately convex, without scrobe, with fairly long, semierect hairs; interantennal process moderately projecting, torulus opening laterally from process; submedian carina absent; orbital carina absent; lower frons without fanlike striae; interocular space distinctly broader than height of eye; clypeus projecting, subtruncate, without sharp posterolateral corners, no differentiation into anteclypeus and postclypeus; malar sulcus absent; gena (malar space) about half length of eye, broad, sculpture variable; labrum hidden beneath clypeus; mandible strong, elongate, deeply bidentate, with lower tooth slightly longer than upper, clasped, i.e., with right overlapping left; palpal formula 4-2, all segments more or less cylindrical; basal labial palpomere short, apical palpomere bulbous; male antenna long, slender, 12-merous; radicle inserted at angle into base of scape (figs. 14, 18: *r*); A1 only slightly longer than A3; A3 several times longer than A2; all antennomeres distinctly elongate, 2–2.5 times longer than wide, with short, appressed hairs; male antenna keels on A4–A5.

Mesosoma only slightly longer than high (fig. 13), fairly convex dorsally, generally roughly sculptured; pronotum in dorsal view with abundant setae, with anterior margin angulate, distinct surface posterior to transverse dorsal carina, lateral shoulders short, broad, heavily rugulose, frontal plate of pronotum well developed, nearly vertical; transverse pronotal carina sharp or partly obscured by neighboring rugulosity; vertical epomial carina weakly developed; horizontal epomial carina moderately to distinctly developed, angularly joining transverse pronotal carina; anterior margin of pronotum above forecoxa crenulate; lateral face of pronotum moderately concave, facing anterolaterally, without scrobe for reception of foreleg, predominantly smooth, shining, glabrous; netrion indicated as fusiform row of rough foveolae, open above coxa, fairly broad; anterior margin of mesoscutum meeting pronotum dorsally; mesoscutum convex, wider than long; admedian lines absent; parapsidal lines moderately to shallowly impressed; notaulus either present or absent, when present broad, almost percurrent, dilated posteriorly, roughly rugulose; skaphion absent; transscutal articulation deep, foveate; scutellum wider than long, semicircular, unarmed; axillulae sharp, almost bladelike; axilla deeply excavated, subtriangular; metanotum narrow, dorsellum moderately differentiated, unarmed; dorsal surface of propodeum deeply excavated medially, posterolateral corners acute, spikelike projecting, nearly glabrous; keels, plicae of propodeum not developed; mesopleuron large, prominent, ventral portion with scattered setae; mesopleural depression well developed (fig. 13: *dep*), deep, glabrous; mesopleural carina absent (fig. 18) or present (fig. 13: *mpc*) on anterior, upper half; sternaulus absent; mesopleural pit present, fairly deep; anterior margin of ventral portion of mesepisternum straight, not protruding between forecoxae; acetabular carina well developed; posterior margin of mesopleuron with row of well-developed, deep foveae; episternal foveae absent; posterodorsal corner of mesepimeron rounded, without posterior tooth; metapleuron with scattered, silvery pilosity, with deep diagonal foveolate groove; anteroventral portion of metapleuron rounded,




Figs. 13–18. *Mexon* Masner and Johnson, n. gen. **13**, *M. adelphos* Masner and Johnson, n. sp., head and mesosoma, lateral view, holotype male (OSUC 174166). **14**, *M. adelphos*, n. sp., head, frontal view, holotype male. **15**, *M. adelphos*, n. sp., head and mesosoma, dorsal view, holotype male. **16**, *M. consors* Masner and Johnson, n. sp., head and mesosoma, dorsal view, holotype male (OSUC 174167). **17**, *M. consors*, n. sp., lateral habitus, holotype male. **18**, *M. consors*, n. sp., head, lateral view, holotype male. **dep**, mesopleural depression; **mpc**, mesopleural carina; **r**, radicle. Scale bars in millimeters.

not separated from lateral face by carina; metapleural pit absent; posterior margin of metapleuron not lamellate; propodeum laterally with fine pilosity, propodeal spiracle well developed; legs long, slender (fig. 17); hind coxa large, posterior surface of hind coxa smooth; femora not incrassate; trochantellus present on all legs; outer surface of fore-, midtibia without spines; tibial spur formula 1-2-2, spurs subequal in length on midtibia; in type species hind inner spur distinctly longer than outer; tarsal formula 5-5-5; tarsomeres elongate, tapering in width apically; pretarsal claws fairly large, simple; forewing rather long, distinctly surpassing apex of metasoma, slightly infuscate; marginal cilia moderately long; R fairly straight, long, extending to midlength of forewing, running distinctly away from costal margin, with numerous, upright, stiff black bristles arising throughout its length, bulla clearly indicated, costal portion (marginal vein) thick, stigmalike, with proximal edge slanting backward; $R_1$ (postmarginal vein) very short; stublike r-rs (stigmal vein) long, gently arcuate, downcurved, dilated apically, arising from lower margin of marginal vein; no other tracheate veins in forewing; basal vein nebulous, well demarked, pigmented, forming strongly acute angle with R; Rs, M, Cu nebulous, indicated by long, pigmented lines; hind wing with proximal third of R tracheate, distal two-thirds not developed; no strong dark bristles on R; three hamuli present.

Metasoma (fig. 17) moderately elongate, uniformly segmented, with predominantly longitudinal costae; subcylindrical; T1 slightly the longest tergite, anteromedially slightly to moderately produced; anterior margins of T2–T5 distinctly impressed, foveolate; T7 narrow, subvertical; male with seven terga, six sterna visible externally; submarginal ridge well developed, defined by narrow laterotergites to form deep submarginal rim; no spiracles visible; no cerci visible; anterior margin of segment 1 deeply crenulate; S1, anterior margin of S2 hidden by hind coxae; narrow sublateral felt fields present on S2.

DIAGNOSIS: Distinguished from *Sparasion* by the absence of a transverse ledge on the frons, the medially clustered ocelli, and the convex frons. Distinguished from *Sceliomorpha* by the presence of a well-developed radicle, the presence of a short postmarginal vein, and the glabrous compound eyes.

TYPE SPECIES: *Mexon adelphos* Masner and Johnson, n. sp.

ETYMOLOGY: A combination of México, from where the two species were collected, and part of the name *Sparasion*, a closely related genus. The name is neuter in gender.

GEOGRAPHIC DISTRIBUTION: México: Michoacán (type), Oaxaca.

COMMENTS: In overall appearance, this scelionid genus is vaguely reminiscent of a small male ant, mainly because of its small eyes, clustered ocelli, and dorsal position of the foramen magnum. This last character suggests that the hypostomal bridge in these species is remarkably long. The unknown female will probably be distinguished by a long horn on T1, judging by the excavated propodeum and projections of T1 in the male sex.

### *Mexon adelphos* Masner and Johnson, new species

Figures 13–15

DESCRIPTION: Holotype male: Length: 2.15 mm. Head and body brown; legs, including coxae, yellowish brown; antenna slightly darker than legs; wings slightly infuscate, with darker nebulous Rs+M, Rs, M, Cu; stigma (marginal vein), $R_1$ dark brown. Interocellar space, occiput behind with rough rugulosity (fig. 15); upper frons, OOL space, postgena almost smooth; lower frons rugose punctate; antenna with segments elongate, length of A4 2.9 times width, length of A5 2.6 times width; A1 relatively short, length 1.3 times length of A3; transverse carina on pronotum weakly developed (fig. 15), hidden by rough rugulosity of dorsal pronotum; anterior two-thirds of mesoscutum with rough rugulosity; notaulus present, almost percurrent, dilated posteriorly, rugulose foveolate; parapsidal lines absent, posterolateral scapula almost smooth; posterolateral edge of scapula sharply upraised; parapsidal line well developed; mesopleural carina entirely absent; anteromedian margin of T1 distinctly elevated.

MATERIAL EXAMINED: Holotype male: **MEXICO**: Michoacán, Carapan, July 10, 1981, J. LaSalle, OSUC 174166 (CNCI).

DIAGNOSIS: Most easily distinguished from *M. consors* by the presence of notauli on the mesoscutum and the presence of coarse rugulae on the posterior portion of the head.

### *Mexon consors* Masner and Johnson, new species

Figures 16–18

DESCRIPTION: Holotype male: Length: 2.4 mm. Head and body black; legs, including coxae, contrastingly golden yellow; antenna dark brown; wings slightly infuscate, with darker nebulose Rs+M, Rs, M, Cu; stigma dark brown. Interocellar space, occiput (fig. 16), entire frons smooth, with scattered setigerous punctures; antenna with segments shorter, length of A4 2.5 times width, length of A5 2.3 times width; A1 longer, length 1.6 times length of A3; transverse carina on pronotum entire, sharply defined; mesoscutum generally smooth, with scattered setigerous punctures; notaulus absent; parapsidal lines weakly developed; posterolateral margin of scapula without raised edge; mesopleural carina developed in upper half, weakly crenulate; anteromedian margin of T1 only slightly elevated.

MATERIAL EXAMINED: Holotype male: **MEXICO**: Oaxaca, 1.4 miles NE La Cumbre, July 18, 1985, Jones, Schaffner; OSUC 174167 (TAMU).

DIAGNOSIS: Most easily distinguished from *M. adelphos* by the absence of notauli on the mesoscutum and the lack of coarse rugulae on the posterior portion of the head.

### *Sceliomorpha* Ashmead

Figures 20, 21, 23, 25–34

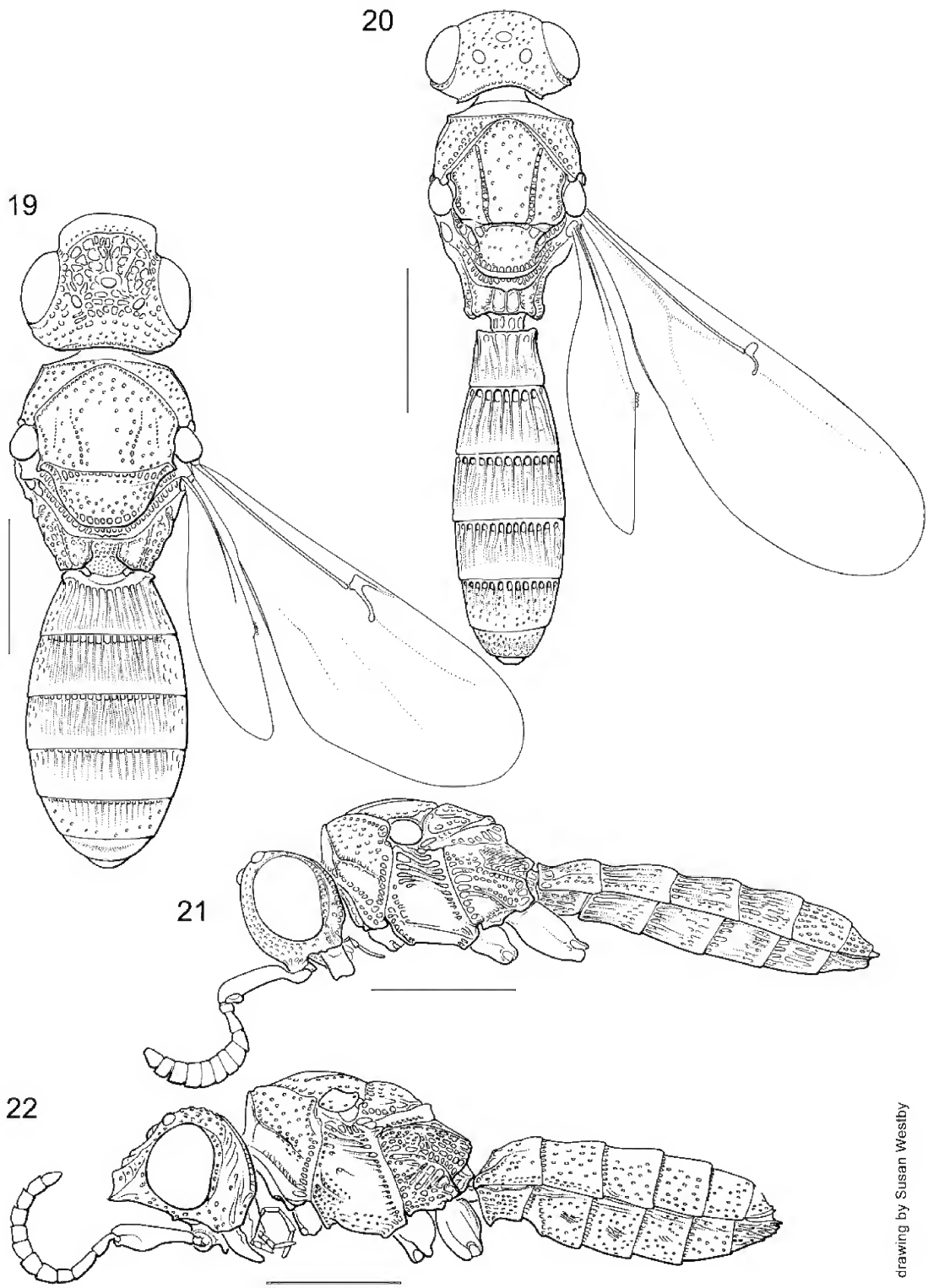
*Sceliomorpha* Ashmead, 1893: 210, 211, 239. Type: *Sceliomorpha longicornis* Ashmead, by original designation.

*Aliofreniger* Szabó, 1956: 49. Type: *Aliofreniger rugosiceps* Szabó, by monotypy and original designation. Synonymized by Masner (1976).

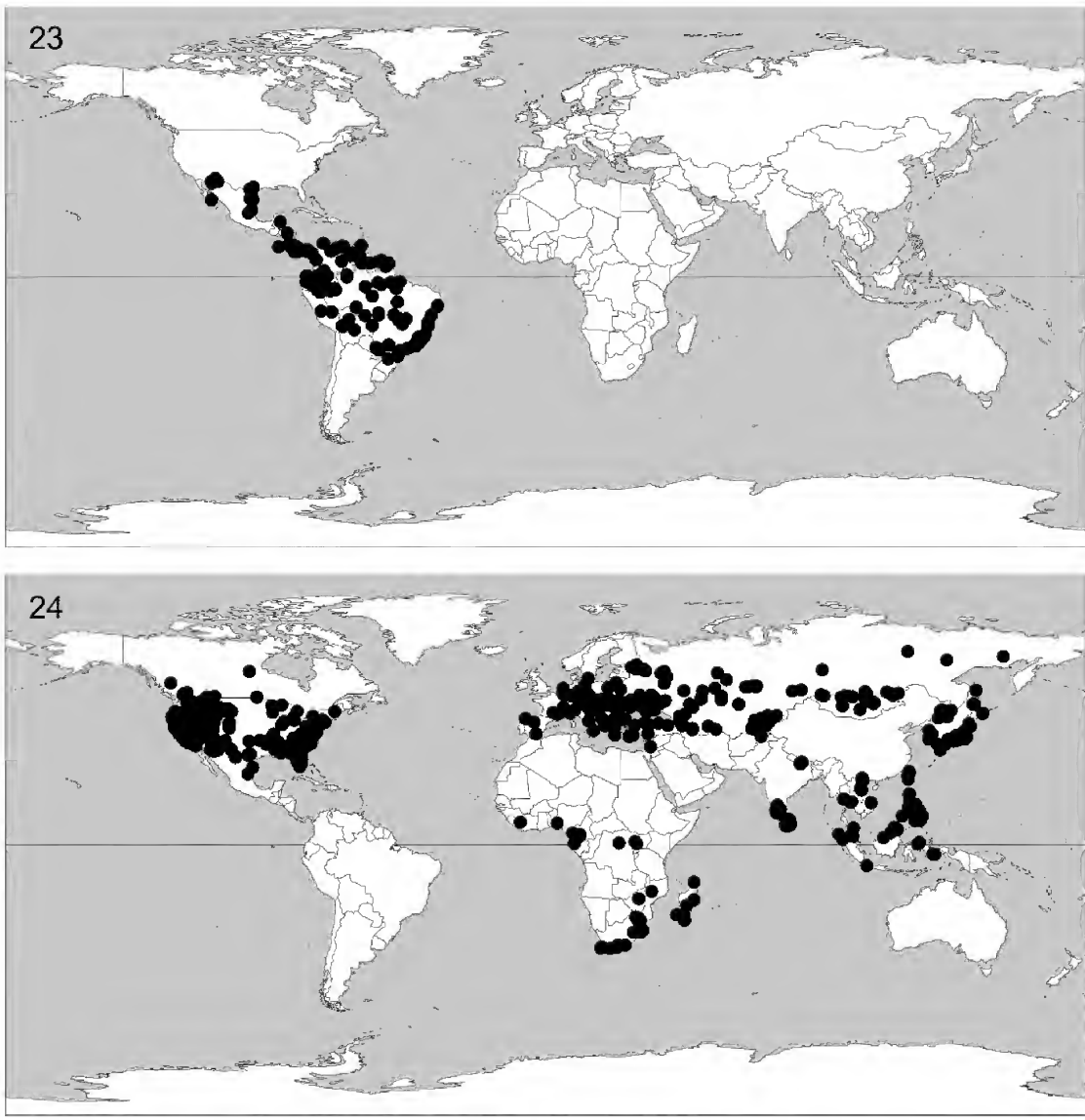
DESCRIPTION: Small to large, length 2.3–6.0 mm; body moderately elongate (figs. 20, 21, 25, 29, 33), rather robust; head black; mesosoma, metasoma varying from black to red or yellow, rarely with weak metallic reflections; macropterous.

Head transverse to subquadrate in dorsal view (figs. 20, 28, 30); upper frons without transverse shelf, evenly convex (figs. 26–28, 30, 34); hyperoccipital carina absent; occipital carina well developed, continuous medially, crenulate; lateral ocellus close to inner orbit of compound eye (figs. 28, 34), OOL short, less than diameter of lateral ocellus; compound eye nearly circular in lateral view, with scattered elongate setae (figs. 26, 31, 32); frons convex throughout, finely to coarsely punctate, sometimes transversely rugose ventrally, with elongate erect setae; frons produced into cowl-like, semiglobose flange over torulus (figs. 26, 31, 32), flange continuous with interantennal process, torulus opening ventrally; submedian carina absent; orbital carina absent; lower frons without fanlike striae; interocular space relatively narrow, shorter than eye height; inner orbits diverging ventrally; clypeus well developed, anterior margin convex, without strongly produced lateral angles, not divided into anteclypeus, postclypeus; malar sulcus absent; gena fairly narrow, abruptly declivous behind eye; labrum hidden beneath clypeus; mandible nearly parallel-sided, strongly bidentate, teeth acutely pointed, subequal in size, arrayed transversely across apex; maxillary palpus 5-segmented, penultimate segment expanded medially into lobe; labial palpus 3-segmented; antenna 12-merous in both sexes; radicle not differentiated from remainder of A1; base of A1 strongly recurved, forming distinct U-shape (fig. 26: *U*), inserting below cowl of interantennal process; A1 gradually widened apically, apex with flange on outer side flanking insertion of pedicel; length of A3 greater than or equal to length of A2; female antenna without distinct clava, apical eight antennomeres gradually widened; gustatory sensilla on female antenna arranged in longitudinal pairs on apical antennomeres; claval formula A5–A12 2-2-2-2-2-2-2-1; male antenna with tyloids on A4, A4–A5, A4–A7, or A4–A8.

Mesosoma in dorsal view longer than wide (figs. 20, 28, 30, 34), in lateral view deep, weakly convex dorsally (figs. 21, 27, 29, 33); pronotum in dorsal view broad laterally, anterolateral corners angulate; transverse pronotal carina present (figs. 27, 28: *tpc*), complete medially; vertical epomial carina present;

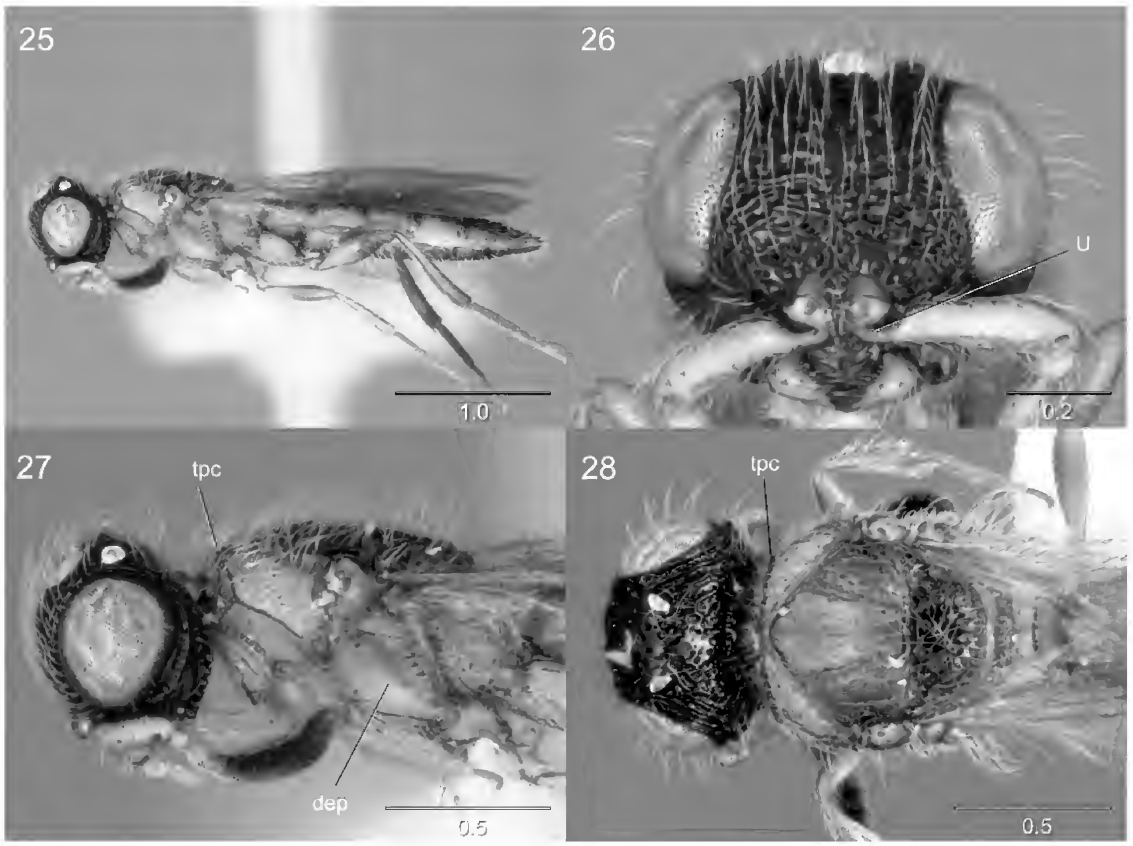



Figs. 19–22. Habitus of Sparasionini. **19**, *Sparasion*, dorsal habitus. **20**, *Sceliomorpha*, dorsal habitus. **21**, *Sceliomorpha*, lateral habitus. **22**, *Sparasion*, lateral habitus. Scale bars = 1 mm.



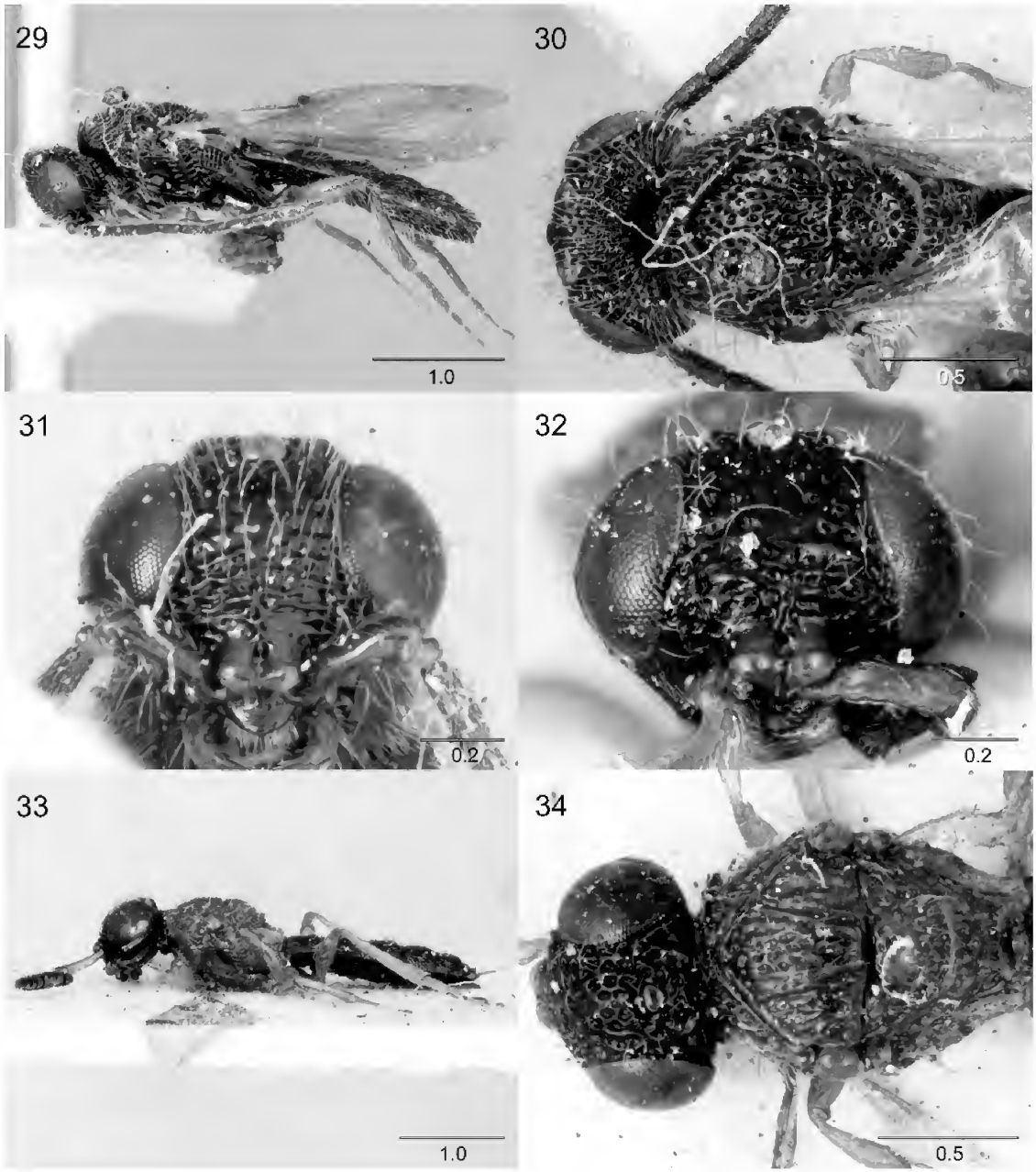

Figs. 23–24. Distribution of Sparasionini. **23**, *Sceliomorpha*. **24**, *Sparasion*. Maps drawn with units of latitude and longitude of equal size.

horizontal epomial carina present; anterior face of pronotum sloping anteriorly, usually visible dorsally; lateral face of pronotum broadly concave, facing anterolaterally; netrion absent, posterior margin of pronotum with large, elongate row of deep punctures; anterior margin of mesoscutum meeting pronotum dorsally; mesoscutum pentagonal in outline; parapsidal lines present; notauli present, nearly percurrent or abbreviated, often obscured by coarse mesoscutal sculpture; skaphion absent; transscutal articulation well developed, deep, without crenulae; scutellum slightly wider than long, unarmed, weakly convex; axilla well developed; metanotum well developed, dorsellum clearly differentiated, produced into coarsely sculptured, quadrate or subtriangular prominence; dorsal surface of propodeum with dense, fine pilosity; with median, submedian, lateral longitudinal plicae, usually with apical transverse keel; posterior face of propodeum variably sculp-




Figs. 25–28. *Sceliomorpha deplanata* Kieffer (OSUC 10143). **25**, Lateral habitus. **26**, Head, frontal view. **27**, Head and mesosoma, lateral view. **28**, Head and mesosoma, dorsal view. **dep**, mesopleural depression; **tpc**, transverse pronotal carina; **U**, fused antennal radicle. Scale bars in millimeters.

tured, setose; mesopleuron large, prominent; mesopleural depression well developed (fig. 27: *dep*); mesopleural carina well developed, nearly longitudinal in orientation; sternaulus absent; mesopleural pit absent; anterior margin of ventral portion of mesepisternum weakly projected anteriorly, not extending between forecoxae; posterior margin of mesopleuron with vertical row of deep foveae; episternal foveae absent; dorsal corner of mesepimeron angulate, without clearly developed posterior tooth; anteroventral portion of metapleuron triangular, separated from lateral face by carina, glabrous; metapleural pit absent; posterior margin of metapleuron lamellate; metapleuron fused with propodeum dorsally, without suture separating sclerites; propodeum areolate-punctate, posterolateral corner distinctly projecting posteriorly as quadrate prominence; legs moderately robust (figs. 25, 29, 33); posterior surface of hind coxa smooth or longitudinally rugulose; femora moderately incrassate; trochantellus absent from all legs; tibia with elongate, erect setae, outer surface of fore-, midtibiae sometimes with stout spines; hind tibiae expanded medially, with upper surface carinate; tibial spur formula 1-2-2, inner tooth longer than outer; tarsal formula 5-5-5; tarsomeres tapering in width apically, strongly compressed laterally; pretarsal claws simple; apex of forewing extending to T6 or beyond (figs. 25, 29), hyaline to slightly infuscate, marginal cilia short, but distinct; R fairly straight, extending at least through basal 0.4 of length of forewing, interrupted by distinct bulla basad of origin of r-rs, with strong bristles arising throughout its length; $R_1$ never reaching costal margin, both marginal and postmarginal veins absent, $R_1$ vein inflated to form pseudostigma;




Figs. 29–31. *Sceliomorpha longicornis* Ashmead, holotype male. **29**, Lateral habitus. **30**, Head and mesosoma, dorsal view. **31**, Head, frontal view. Figs. 32–34. *Aliofreniger rugosiceps* Szabó, holotype female. **32**, Head, frontal view. **33**, Lateral habitus. **34**, Head and mesosoma, dorsal view. Scale bars in millimeters.

r-rs (stigmal vein) reflexed apically, arising just beyond bulla in R, away from costal margin; no other tracheate veins in forewing; hind wing with R tracheate only at extreme base, not extending to hamuli and costal margin; no strong dark bristles on R; costal margin of hindwing above R with rather dense, strong setae; four hamuli present.

Metasoma moderately elongate (figs. 20, 21, 25, 29, 33), terga weakly convex, sterna

deep, convex; T1–T5 subequal in length, none distinctly the longest; female with six terga, six sterna visible externally, male with seven terga, six sterna visible externally; submarginal ridge well developed, defined by narrow laterotergites to form deep submarginal rim; no spiracles visible; base of segment 1 longitudinally costate; suture between segments 1 and 2 basally crenulate; base of segments 2–7 costate; T1 horn usually absent, rarely weakly developed; female T6 without median raised field of microsetae or secretion; S1 laterally compressed, with median longitudinal keel, clasped between apices of hind coxae, not extending far anteriorly between bases hind coxae, sometimes produced posteriorly into hooklike projection; S2 with median longitudinal keel, anterior margin sometimes produced anteriorly into median tooth; no felt fields present on sterna; T7 not extruded with ovipositor, with short internal paired apodemes; S7 with paired lateral apodemes.

DIAGNOSIS: Distinguished from *Sparasion*, *Mexon*, and *Electroteleia* by the lack of a differentiated radicle and the U-shaped base of A1; from *Listron* by the absence of a transverse frontal shelf.

GEOGRAPHIC DISTRIBUTION: Southwestern United States (Arizona and Texas) to Paraguay, northern Argentina (Jujuy), and southeastern Brazil (Santa Catarina) (fig. 23).

COMMENTS: *Sceliomorpha* is a widespread and common genus in Latin America. It has been collected in a wide range of habitats, including rainforest and savanna, from sea level to 1800 m elevation. Both yellow pan traps and Malaise traps are effective in capturing specimens. Only eight species have been described, but the results from our ongoing revision of the genus indicate that the real number of species is at least forty. Despite the richness in numbers of both species and individuals, we have no host records for *Sceliomorpha*.

In his original description of the genus Ashmead (1893) included two species: the type species *S. longicornis* Ashmead (figs. 29–31) from Santarem in the Amazon Basin; and *S. bisulca* Ashmead, a phoretic species now placed in the genus *Synoditella* Muesebeck (Muesebeck, 1972). Szabó (1956) described *Aliofreniger* on the basis of a single specimen from Costa Rica (figs. 32–34). Masner (1976), based on examination of the type specimen, placed *Aliofreniger* as a junior synonym of *Sceliomorpha*. *Aliofreniger rugosiceps* Szabó, the type of the genus, clearly possesses all of the features of *Sceliomorpha*, including the U-shaped radicle and the flanges overhanging the toruli.

## *Sparasion* Latreille

Figures 19, 22, 24, 35–40

*Sparasion* Latreille, 1802: 316. Type: *Sparasion cephalotes* Latreille, by monotypy.

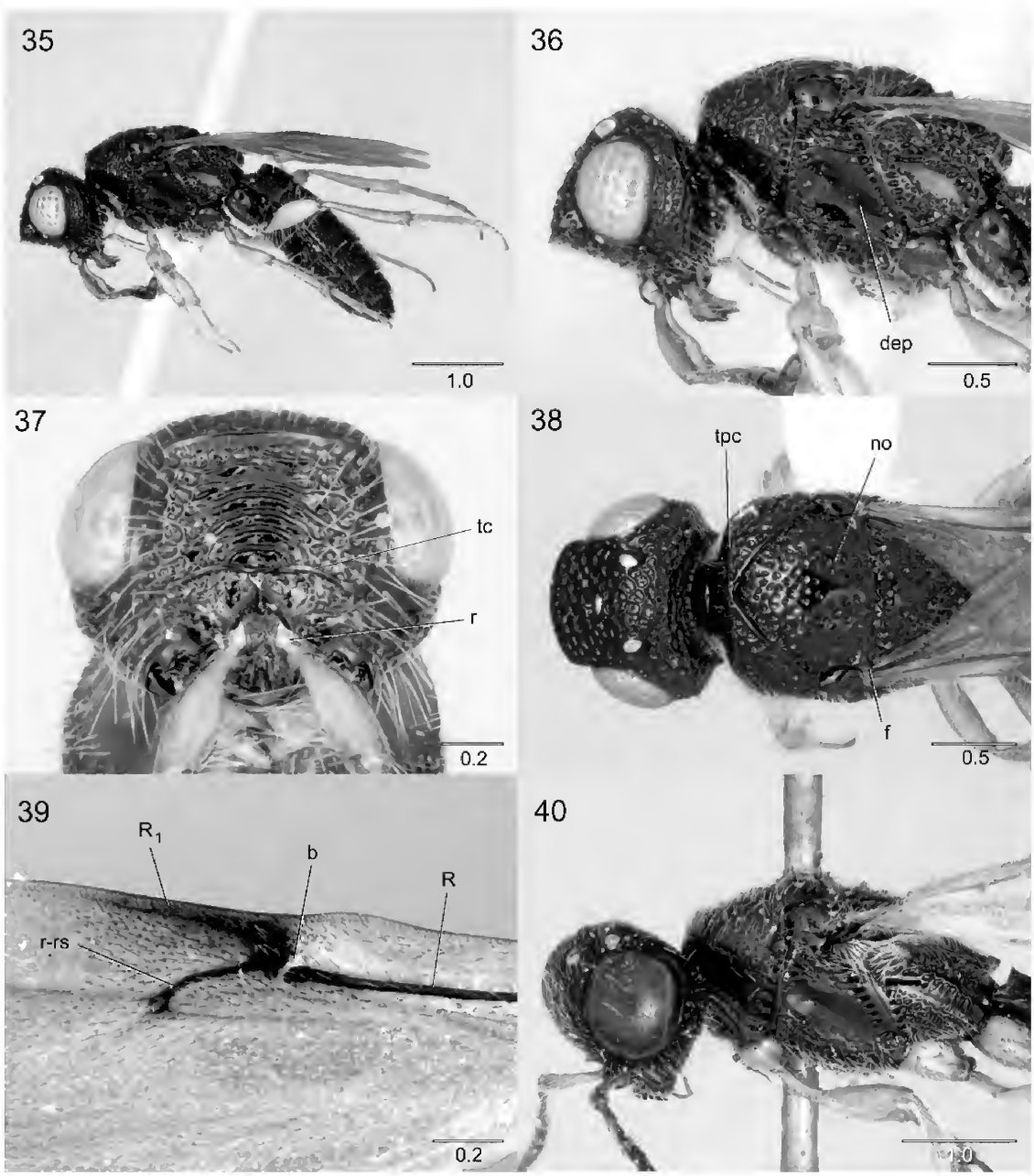
*Oxyurus* Lamarck, 1817: 128. Type: *Sparasion frontalis* Latreille, designated by Muesebeck and Walkley (1951). Preoccupied by *Oxyurus* Rafinesque, 1810 (Pisces).

*Bebelus* Gistel, 1848: x. Type: *Sparasion frontalis* Latreille, by substitution of *Bebelus* for *Oxyurus*. Replacement name for *Oxyurus* Lamarck.

*Prosparasion* Kieffer, 1913: 190. Type: *Prosparasion coeruleum* Kieffer, by monotypy and original designation. Synonymized by Masner (1976).

DESCRIPTION: Small to large, length 2.1–7.3 mm; body robust (figs. 19, 22, 35), sometimes slightly depressed, with relatively long, strong legs, antenna relatively short, width of antennomeres variable; head large, usually with one to three transverse ledges in upper portion of frons; head, body usually black, sometimes with metallic blue or green tinge, sometimes brown, yellow, or bright orange; macropterous.

Head large, weakly transverse to quadrate in dorsal view (figs. 19, 38); upper frons usually produced anteriorly into one to three transverse shelves (figs. 22, 35, 36), anterior margin simple, usually arcuate, sometimes sinuous; hyperoccipital carina absent; occipital carina well developed, continuous medially, crenulate; lateral ocellus distinctly separated from inner orbit of compound eye, OOL 0.5–1.5 times diameter of lateral ocellus (fig. 38); compound eye glabrous or with few short setae (figs. 37, 40); frons shape variable, weakly concave to broadly convex, without distinct scrobe, sculpture highly variable, usually with transverse carina above interantennal prominence (fig. 37: *tc*); area between compound eye, antennal insertion and base of mandible deeply concave corresponding to shift in position of anterior mandibular




Figs. 35–39. *Sparasion* Latreille. **35**, Lateral habitus, female (OSUC 171667). **36**, Head and mesosoma, lateral view (OSUC 171667). **37**, Head, frontal view, female (OSUC 171667). **38**, Head and mesosoma, dorsal view, female (OSUC 171667). **39**, Detail of forewing (OSUC 171666). **40**, *Prosparasion coeruleum* Kieffer (= *Sparasion lividus* Johnson, Musetti and Masner, n. n.), head and mesosoma, lateral view, holotype female. **b**, bulla; **dep**, mesopleural depression; **f**, mesoscutal flange; **no**, notaulus; **R**, radius (submarginal vein); $\mathbf{R_1}$, first abscissa of radius (postmarginal vein); **r**, radicle; **r-rs**, radial-radial sector crossvein (stigmal vein); **tc**, transverse carina; **tpc**, transverse pronotal carina. Scale bars in millimeters.

articulation; interantennal process strongly produced anteriorly, torulus opening laterally from process; submedian carina absent; orbital carina absent; lower frons without fanlike striae; interocular space broad, subequal to eye height; inner orbits parallel; clypeus strongly raised beneath interantennal process, elongate, apically truncate or rounded, not divided into anteclypeus and postclypeus; malar sulcus absent; gena moderately expanded, convex; unsclerotized labrum, apical fringe of long setae often exposed; mandible large, lower margin distinctly expanded so that mandible is widened toward apex, anterior articulation deeply invaginated, posterior articulation shifted anteriorly to side of head, mandibular range of movement primarily anteroventral; mandible usually with two, rarely three apical teeth, longitudinal axis of mandible slightly twisted so that teeth approximately transverse; maxillary palpus 5-segmented, segment 3 expanded medially; labial palpus 3-segmented; antenna 12-merous in both sexes; radicle inserted subapically into A1, nearly perpendicular to longitudinal axis of A1 (fig. 37: *r*); A1 distinctly widened in apical half; A3 longer than A2; female antenna without distinct clava; gustatory sensilla on female antenna arranged in longitudinal pairs on apical antennomeres; claval formula A4–A12 1-2-2-2-2-2-2-2-1; male antenna with tyloids on A4–A11, sometimes A12.

Mesosoma robust, in dorsal view longer than wide (figs. 19, 38), in lateral view deep, somewhat flattened dorsally (figs. 22, 36, 40); pronotum in dorsal view broad laterally, anterolateral corners angulate; transverse pronotal carina present (fig. 38: *tpc*), sometimes effaced medially; vertical epomial carina variably developed, usually present dorsally; horizontal epomial carina present, strongly developed; anterior face of pronotum short, but clearly visible in dorsal view; lateral face of pronotum broadly concave below horizontal epomial carina, facing anterolaterally, with broad scrobe for reception of foreleg; netrion apparently absent, posterior margin of lateral pronotum bordered by deep longitudinal costae; anterior margin of mesoscutum meeting pronotum dorsally; mesoscutum triangular to pentagonal in outline, posterolateral corner produced into acute flange flanking tegula (fig. 38: *f*); parapsidal lines present; notauli variably developed, sometimes absent, often obscured amid coarse mesoscutal sculpture; skaphion absent; transscutal articulation well developed, crenulate to costate; scutellum wider than long, unarmed laterally, convex to weakly flattened; axilla small; metanotum narrow, dorsellum clearly differentiated, armature variable, sometimes produced medially into weak spine; dorsal surface of propodeum with dense, fine pilosity; keels, plicae of propodeum variably developed; posterior face of propodeum punctate, setose; mesopleuron large, prominent; mesopleural depression well developed (fig. 36: *dep*); anterior margin of depression sharply demarcated by change in sculpture, but without distinct mesopleural carina; sternaulus absent; mesopleural pit present, shallow; anterior margin of ventral portion of mesepisternum and acetabular carina extended forward moderately between forecoxae; mesepisternum and mesepimeron separated by line of well developed foveae; episternal foveae absent; dorsal corner of mesepimeron produced into short, acute, posterior tooth; anteroventral portion of metapleuron separated from lateral face by irregular carina and sculpture, setose; metapleural pit present near anterior margin of metapleuron; posterior margin of metapleuron lamellate; metapleuron separated from propodeum dorsally by deep groove; propodeum with longitudinal carinae variably developed, setose throughout, posterolateral corners projecting posteriorly as blunt prominences; legs robust (fig. 35), femora weakly to distinctly incrassate; posterior surface of hind coxa with arcuate striae, setose; trochantellus absent from all legs; outer surface of fore-, midtibiae with strong semierect spines and elongate setae; tibial spur formula 1-2-2, inner spur longer; tarsal formula 5-5-5; tarsomeres tapering in width apically; pretarsal claws simple; apex of forewing extending to T6 or beyond, variably infuscate, marginal cilia short, but distinct; R fairly straight (figs. 19, 39), extending through basal 0.5 of length of forewing, interrupted by distinct bulla basad of origin of r-rs, with strong bristles arising throughout its length; $R_1$ usually reaching costal margin, extending apically variable

distance as postmarginal vein, vein inflated posteriorly and costal cell posterior to $R_1$ deeply pigmented, forming pseudostigma; r-rs (stigmal vein) reflexed apically, arising just beyond bulla in R, away from costal margin; no other tracheate veins in forewing; hind wing with R tracheate only at extreme base, not extending to hamuli and costal margin; no strong dark bristles on R; costal margin of hind wing above R with rather dense, strong setae; four hamuli present.

Metasoma more or less cylindrical (figs. 19, 22, 35), terga slightly flattened, sterna deep, convex; T1–T5 subequal in length, T1 slightly the longest; female with six terga, six sterna visible externally, male with eight terga, seven sterna visible externally; submarginal ridge well developed, defined by narrow laterotergites to form deep submarginal rim; no spiracles visible; base of segment 1 longitudinally costate; suture between segments 1 and 2 basally crenulate; base of segments 2–6 costate, sutures between segments beyond 6 simple; female T6 without median raised field of microsetae or secretion; S1 not laterally compressed, clasped between apices of hind coxae, not extending anteriorly between bases hind coxae; anterior margin of S2 straight; no felt fields present on sterna; S7 with lateroventral apodemes; T7 not extruded with ovipositor, with short internal paired apodemes; S7 with paired lateral apodemes.

DIAGNOSIS: The combination of a transverse ledge on the frons, 1-2-2 tibial spur formula, and presence of a bulla in R is found elsewhere only in *Listron*, new genus. *Sparasion* may be distinguished from it by the presence of a differentiated radicle, the expansion of the ventral margin of the mandible, the expanded third maxillary palpomere, and the shift in position of mandibular articulations with its corresponding effect on the shape of the lower frons and clypeus. The few species of *Sparasion* lacking a frontal ledge, e.g., *S. coeruleum* Kieffer (fig. 40), may be distinguished from *Mexon* new genus by the broad LOL, and from *Sceliomorpha* by the differentiated radicle.

GEOGRAPHIC DISTRIBUTION: Widespread in Eurasia, Africa, and temperate North America (fig. 24). Unknown from Australasia; a single specimen is known from Argentina in CNCI, possibly either an introduction or a mislabelled specimen. Two species also recorded from Baltic amber (Brues, 1940).

HOSTS: Recorded in the United States from *Anabrus simplex* Haldeman and *Atlanticus gibbosus* (Scudder) (Muesebeck, 1979; Grissell, 1997) (Orthoptera: Tettigoniidae, Tettigoniinae).

COMMENTS: The holdings of the Muséum National d'Histoire Naturelle in Paris includes several specimens, generally in poor condition, bearing labels from the Bosc collection suggesting that they may have been in the material studied by Latreille (Notton, personal commun.). None, however, match the description and provenance of the two relevant type species here, *Sparasion cephalotes* and *S. frontale*. Although we thus cannot document completely the identity of *Sparasion* and its synonym *Oxyurus* (and *Bebelus*) through the primary types of the type species of the genera, this is of little practical import. *Sparasion* has been consistently recognized for over 150 years and, in the European fauna, it is unmistakable.

Kieffer (1913) described the genus *Prosparasion*, distinguishing it from *Sparasion* solely on the basis of the lack of a transverse carina on the frons (fig. 40). Masner (1976), without elaboration, synonymized the two names. Kelner-Pillault (1958) earlier claimed that the holotype is deposited in the MNHN, but this specimen comes from Butuan on the island of Mindanao, not Luzon. Therefore it cannot be the holotype. Much of the Baker collection is now found in the National Museum of Natural History, Washington, DC. Among these is one specimen, bearing a type label in Kieffer's hand, from "Los Banos, P. I. " While this is not literally the type locality reported by Kieffer in the original description, "Mt. Makiling", the city of Los Baños is at the foot of the mountain. We have found no specimens in any of the collections that have Mt. Makiling on the label. Accordingly, we conclude that the NMNH specimen is the holotype of *Prosparasion coeruleum*.

*Prosparasion coeruleum* is very distinctive (fig. 40): The frons is evenly convex and lacks any indication of a transverse ledge. Almost all other species of living *Sparasion* possess

such a ledge, sometimes even two or three. The vein r-rs in the forewing is nearly parallel with the costal margin. The metallic blue color is not unique to this species nor particularly uncommon in the genus, but is a notable departure from the usual black to dark brown color found in *Sparasion*. On the other hand, *P. coeruleum* shares with all extant *Sparasion* species the medial posterior flangelike expansion of the mandible and the presence of an irregular transverse carina directly above the antennal insertions. These last two characters are unique to extant *Sparasion*. In the absence of a worldwide revision of *Sparasion*, we believe that it is both prudent and conservative to support the synonymy originally proposed by Masner (1976). This synonymy of generic names renders *Prosparasion coeruleum* Kieffer, 1913 a junior homonym of *Sparasion coeruleus* Kieffer, 1905. Accordingly, we propose the replacement name, *Sparasion lividus* Johnson, Masner and Musetti **new name** for the type species of the genus *Prosparasion*.

Uncertainty concerning the gender of the name *Sparasion* has led to confusion as to the proper endings to use with specific epithets. In his original description of the genus, Latreille (1802) included only a single species, *S. cephalotes* Latreille, an epithet that does not distinguish among the three possibilities of masculine, feminine, and neuter. Three years later (Latreille, 1805), he added a second species, *S. frontalis* Latreille. This suggests that the gender of *Sparasion* is not neuter. However, in the next publication in which he treated the genus, Latreille (1809) emended the ending of this second species to *S. frontale*. This seems to be strong evidence that, at least at that time, he considered the name to be neuter.

The name *Sparasion* was generally, but not unanimously, used as a neuter noun through the rest of the 19th and into the 20th century. The change of usage to the masculine appears to have begun with Kieffer (1916), but probably received its greatest impetus by the nearly systematic change of specific epithets in his compendium of the world Scelionidae (Kieffer, 1926). This usage has now been followed in the description of the many species from the Palearctic (Kozlov and Kononova, 1988, 1990; Kononova, 1995; Kononova and Petrov, 2001a, 2001b). Given the general confusion on this issue, any decision will result in the need to change a good number of names from one gender to the other. Therefore, because Latreille (1805) first used a nonneuter epithet (*frontalis*) and the name has never been considered to be feminine, we believe it is best to follow Kozlov and Kononova (1988, 1990) and treat *Sparasion* as a masculine noun.

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